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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/964,724	09/26/2001	Xiao Feng Li	42390P11585	1828

7590

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EXAMINER

LEROUX, ETIENNE PIERRE

ART UNIT	PAPER NUMBER
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2171

DATE MAILED: 04/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/964,724

Applicant(s)

LI, XIAO FENG

Examiner

Etienne P LeRoux

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 25 March 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 September 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

***Claim Objections:***

Claims 8, 16 and 30 are objected to because two steps are labeled step (d) and two steps are labeled step (e). Appropriate correction is required.

***Drawing Objections:***

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the depth of the object type and the depth of the query type must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-16 and 24-30 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claim 1 recites "comparing a depth of the data object type within the plurality of successive type hierarchy references to a depth of the query type within the plurality of successive type hierarchy references to a depth of the query type within the plurality of successive type hierarchy references." The depth of the data object type and the depth of the query type in the hierarchy cannot be determined from the disclosure.

Claims 9 and 24 recite language similar to the above and are thus rejected for the same reasons as above.

Claims 2-8, 10-16, 25-30 are rejected for being dependent from a rejected base claim.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4, 6-12, 14-16 and 24-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Pat No 6,687,760 issued to Bracha (hereafter Bracha) in view of US Pat No 5,793,965 issued to Vanderbilt et al (hereafter Vanderbilt), as best examiner is able to ascertain.

Claims 1, 8, 9, 16, 24, 26 and 30:

Bracha discloses:

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- determining for a query type, that is within the portion of the successive type hierarchy references, if a data object type corresponding to the data object, is the query type [Fig 3], and if not:
- comparing a depth of the data object type within the plurality of successive type hierarchy references to a depth of the query type within the plurality of successive type hierarchy references [Fig 5]:
- determining that the data object type is not the query type if the depth of the data object type is not greater than the depth of the query type [Fig 6A]
- comparing the query type to a corresponding type hierarchy reference and determining that the data object type is the query type if the query type and the corresponding type hierarchy are equal [Fig 6A]

Bracha discloses the elements as noted above.

Bracha fails to disclose Vanderbilt discloses caching a plurality of successive type hierarchy references corresponding to a data object within the data structure of the data object, accessing the cached type hierarchy references at run time to perform type checking of the data object.

Vanderbilt discloses caching a plurality of successive type hierarchy [paragraph 83] references corresponding to a data object within the data structure of the data object [Fig 3, paragraph 80] accessing the cached type hierarchy references at run time to perform type checking of the data object [abstract]

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Bracha to include caching a plurality of successive type hierarchy

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references corresponding to a data object within the data structure of the data object, accessing the cached type hierarchy references at run time to perform type checking of the data object as taught by Vanderbilt.

The ordinarily skilled artisan would have been motivated to modify Bracha per the above for the purpose of storing data in a storage structure that has low access time.

Claims 2, 10 and 25:

The combination of Bracha and Vanderbilt disclose the elements of claims 1, 9 and 24 as noted above.

Vanderbilt discloses wherein the plurality of successive type hierarchy references are cached in a data structure of the data object [Fig 4]

Claims 3, 11, and 27:

The combination of Bracha and Vanderbilt disclose the elements of claims 1, 2, 9, 10 and 24 as noted above.

Bracha discloses wherein the data structure is a data structure of an object oriented computer language [col 1, lines 60-65].

Claims 4 and 12:

The combination of Bracha and Vanderbilt disclose the elements of claims 1, 2, 3, 9, 10 and 11 as noted above.

Bracha discloses JAVA [col 1, lines 60-65].

Claims 6, 14 and 28:

The combination of Bracha and Vanderbilt discloses the elements of claims 1 and 9 as noted above.

The combination of Bracha and Vanderbilt '965 fails to disclose wherein the plurality of successive type hierarchy references comprises a maximum number of successive type hierarchy references required by a specific application.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Bracha and Vanderbilt to include wherein the plurality of successive type hierarchy references comprises a maximum number of successive type hierarchy references required by a specific application.

The ordinarily skilled artisan would have been motivated to modify the combination of Bracha and Vanderbilt '965 as per the above for the purpose of providing references per the design basis.

Claims 7 and 15:

The combination of Bracha and Vanderbilt discloses the elements of claims 1 and 9 as noted above.

Vanderbilt '965 discloses wherein the plurality of successive type hierarchy references comprises a number of successive type hierarchy references, the number of successive type hierarchy references dynamically determined at run time [abstract].

Claim 26:

The combination of Bracha and Vanderbilt discloses the elements of claim 24 as noted above.

Bracha discloses a sub-root log [Fig 5]

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Claims 5, 13 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Brach and Vanderbilt and further in view of US Pat No 4,945,475 issued to Bruffey et al (hereafter Bruffey).

Claims 5, 13, and 29:

The combination of Bracha and Vanderbilt discloses the elements of claims 1, 9 and 24 as noted above.

The combination of Bracha and Vanderbilt fails to disclose wherein the plurality of successive type hierarchy references comprises three successive type hierarchy references.

Bruffey discloses wherein the plurality of successive type hierarchy references comprises three successive type hierarchy references [Fig 6].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Bracha and Vanderbilt to include wherein the plurality of successive type hierarchy references comprises three successive type hierarchy references as taught by Bruffey.

The ordinarily skilled artisan would have been motivated to modify the combination of Bracha and Vanderbilt for the purpose of providing a catalog for a plurality of data objects [abstract]

Claims 17, 20 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Pat No 5,819,283 issued to Turkowski (hereafter Turkowski '283) in view of US Pat No 6,427,123 issued to Sedlar (hereafter Sedlar '123).

Claim 17:



Turkowski '283 discloses a type field to specify the data object type [col 2, lines 4-15].

Turkowski '283 fails to disclose an identifier that identifies successive type hierarchy references of the data object.

Sedlar '123 discloses an identifier that identifies successive type hierarchy references of the data object [claim 34]

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Turkowski '283 to include an identifier that identifies successive type hierarchy references of the data object as taught by Sedlar '123.

The ordinarily skilled artisan would have been motivated to modify Turkowski '283 as noted above for the purpose of maintaining a hierarchical index to efficiently access information in a relational system based on path names [abstract]

Claim 20:

Turkowski '283 discloses wherein the data objects are data objects of an object oriented computer language [abstract].

Claim 23:

Sedlar discloses successive type hierarchy references comprises a maximum number of successive type hierarchy references based upon a specific application requiring type checking of the data object [claim 34]

Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Turkowski '283 and Sedlar '123 and further in view of Pub No US 2002/0021788 issued to Kasvand et al (hereafter Kasvand '788).

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Claim 18:

The combination of Turkowski '283 and Sedlar '123 discloses the elements of claim 17 as noted above.

The combination of Turkowski '283 and Sedlar '123 fails to disclose wherein the identifier is a sub-root log to store the plurality of successive type hierarchy references of the data object.

Kasvand '788 discloses wherein the identifier is a sub-root log to store the plurality of successive type hierarchy references of the data object [paragraph 7].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Turkowski '283 and Sedlar '123 to include wherein the identifier is a sub-root log to store the plurality of successive type hierarchy references of the data object as taught by Kasvand '788.

The ordinarily skilled artisan would have been motivated to modify the combination of Turkowski '283 and Sedlar '123 per the above for the purpose of making it easier for the user to see the flow of logs and also demonstrates the true cause of the problem [paragraph 3]

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Turkowski '283 and Sedlar '123 and further in view of US Pat No 6,631,478 issued to Wang et al (hereafter Wang '478)

Claim 19:

The combination of Turkowski '283 and Sedlar '123 discloses the elements of claim 17 as noted above.

The combination of Turkowski '283 and Sedlar '123 fails to disclose wherein the identifier is a pointer to a sub-root log, the sub-root log to store the plurality of successive type hierarchy references of the data object.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Turkowski '283 and Sedlar '123 to include wherein the identifier is a pointer to a sub-root log, the sub-root log to store the plurality of successive type hierarchy references of the data object as taught by Wang '478.

The ordinarily skilled artisan would have been motivated to modify the combination of per the above for the purpose of providing a high performance stable storage system which provides stable and fast storage services to applications built on top of one or more operating system (OS) kernels in a computer network.

Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Turkowski '283 and Sedlar '123 and further in view of Shiigi '442.

Claim 21:

The combination of Turkowski '283 and Sedlar '123 discloses the elements of claims 17 and 20 as noted above.

The combination of Turkowski '283 and Sedlar '123 fails to disclose wherein the object oriented computer language is selected from the list consisting of JAVA

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Turkowski '283 and Sedlar '123 to include wherein the

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object oriented computer language is selected from the list consisting of JAVA as taught by Shiigi '442.

The ordinarily skilled artisan would have been motivated to modify the combination of to include Turkowski '283 and Sedlar '123 for the purpose of improving acceptability by using a well-known language such as JAVA.

Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Turkowski '283 and Sedlar '123 and further in view of Bruffey '475.

Claim 22:

The combination of Turkowski '283 and Sedlar '123 discloses the elements of claim 17 as noted above.

The combination of Turkowski '283 and Sedlar '123 fails to disclose wherein the plurality of successive type hierarchy references comprises three successive type hierarchy references.

Bruffey '475 discloses wherein the plurality of successive type hierarchy references comprises three successive type hierarchy references [Fig 6].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Turkowski '283 and Sedlar '123 to include wherein the plurality of successive type hierarchy references comprises three successive type hierarchy references as taught by Bruffey '475.

The ordinarily skilled artisan would have been motivated to modify the combination of Turkowski '283 and Sedlar '123 for the purpose of providing a catalog for a plurality of data objects [abstract]

***Response to Arguments***

Applicant's arguments filed 3/25/2004, have been fully considered but they are not persuasive.

**First Applicant Argument:**

Applicant states on page 15 "It is also respectfully submitted that Turkowski does not teach or suggest a combination with Sedlar and that Sedlar does not teach or suggest a combination with Turkowski. It would be impermissible hindsight based on applicant's own disclosure to incorporate the method for storing an extensible object of Turkowski into the relational system-based scheme for hierarchical indexing information of Sedlar.

**First Examiner Response:**

Examiner is not persuaded. Applicants may argue that the examiner's conclusion of obviousness is based on improper hindsight reasoning. However, "[a]ny judgement on obviousness is in a sense necessarily a reconstruction based on hindsight reasoning, but so long as it takes into account only knowledge which was within the level of ordinary skill in the art at the time the claimed invention was made and does not include knowledge gleaned only from applicant's disclosure, such a reconstruction is proper." In re McLaughlin 443 F.2d 1392, 1395, 170 USPQ 209, 212 (CCPA 1971).

Furthermore, examiner has taken the reason for combining Turkowski and Sedlar from the abstract of Turkowski.

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Etienne LeRoux whose telephone number is (703) 305-0620. The examiner can normally be reached on Monday – Friday from 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Safet Metjahic, can be reached on (703) 308-1436.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

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Patent related correspondence can be forwarded via the following FAX number (703)  
872-9306

Etienne LeRoux

4/21/2004



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